

SUPPLEMENTAL NOTES TO CITY LIGHT'S 1998 CLIMATE CHALLENGE REPORT
(see #1 for report summary)
June 1999

These supplemental responses include the following:

- 1) a summary of Seattle City Light's greenhouse gas accomplishments in 1998
- 2) the anticipated impact of changes in conservation funding
- 3) updates on other City Light Climate Challenge Accord commitments
- 4) a note about the reference case we used to develop estimates of avoided carbon dioxide emissions
- 5) a note about emission reductions in future years
- 6) a note about acronyms used for other government agencies

Supplemental responses #1, #2, and #3 summarize and supplement information contained in this EIA-1605 report for 1998. Supplemental responses #4 and #5 apply to all of the project forms in Schedule II. Supplemental responses #2, #6, and #7 apply to the Energy End Use projects (conservation programs) reported in Section 3 of Schedule II.

1) In 1998 Seattle City Light achieved indirect reductions of 225,332 tons in carbon dioxide emissions through projects detailed in Section II of this report. This represents an increase in indirect reductions of 17,495 tons or 8% over 1997.

Of these reductions, 178,691 tons (79%) are attributable to City Light's energy conservation programs. These programs have provided progressively more energy savings in recent years. In 1995, 1996, and 1997, energy savings from these conservation programs translated into reductions of 113,908 tons, 138,286, and 154,967 tons of carbon dioxide emissions, respectively.

A new hydroelectric generation resource, City Light's South Fork Tolt River hydroelectric project, which went on line in November 1995, accounts for 25,751 tons (12%) in indirect reductions of carbon dioxide emissions in 1998.

System efficiency improvements account for the remaining 20,890 tons (9%) in indirect reductions of carbon dioxide emissions in 1998. These reductions constitute 52% of the reductions (39,886 tons) we have committed to achieving through system efficiency improvements by the year 2000.

Through our Urban Tree Replacement Program, we sequestered over 6 tons of carbon in 1998 (equivalent to nearly 24 tons of carbon dioxide).

2) Over the next four years, 1999 through 2002, City Light will continue to invest financial resources in order to offer a variety of conservation programs and services to all customer segments in City Light's service territory. These energy efficiency initiatives and activities are part

of City Light's overall conservation strategy initiated in 1992 to acquire 100 aMW of energy savings. Over the next four years, we expect a corresponding drop in carbon dioxide emissions avoided due to the 6 aMW per year of energy savings achieved through the operations of City Light programs and services. By 2003, we expect to have achieved 80% of the original target of 100 aMW.

3) Below is an update on our other Climate Challenge Accord commitments not included in the schedules of this EIA-1605 report. The update is keyed to the commitments listed in Section I of the Accord:

o Undertake system efficiency improvements: Several of the ones listed in the Accord are not due to go on-line until after 1998. These include:

- Individual hydro-generator unit control (energy benefits won't be seen until our energy management system becomes fully operational)

- Service voltage reduction (project on hold due to technical problems)

- Skagit River reservoir optimization (energy benefits won't be seen until our energy management system becomes fully operational)

- Optimization of feeder loads: No efficiency improvements from this are now expected until after 2005, if then. Installation of optimization software is waiting for other improvements to be installed first.

o Purchase land and preserve it for wildlife habitat: in 1998, Seattle City Light purchased 1,717 acres of forest lands, primarily upland, mixed deciduous/coniferous forest. Since 1992, we have acquired over 8,000 acres of forest lands and set them aside as wildlife habitat in the Skagit River basin and the adjacent South Fork of the Nooksack River basin. Nonetheless, it is unlikely that we will be able to take credit for significant sequestration of carbon dioxide from these preserves.

Most of the land we have acquired would have been otherwise managed for timber production on a forty- to fifty-year rotation. According to the EIA's forestry sector guidelines, the relevant reference case in this instance is continued management for periodic timber harvest. The discussion at pp. 5.36-37 of these guidelines states:

"While in the short term there may be significant differences in the fate of forest carbon between the two cases of preservation and harvest (clearly evident from visualizing what the sites look like in the two cases), this difference may be insignificant over time as the harvested forest regrows and recaptures the released carbon."

Thus, it is likely that the long-term additions to forest carbon from our forest preservation program are not large. For this reason, we have decided not to do a detailed analysis in this year's report of the amount of carbon dioxide sequestered through forest preservation compared with long-term forestry management.

o Consider joining the Public Power Initiative: As of May 1999, Seattle City Light has not participated in any public utility joint ventures to reduce emissions of greenhouse gases. Although

we are still interested in such ventures, it is unclear whether we will participate in them in the near future.

4) For all of the projects listed in this report except for the Urban Tree Replacement Program (UTRP), we have assumed that an efficient, natural gas-fired Combined Cycle Combustion Turbine (CCCT) would have been utilized in their absence. Thus, a CCCT is the reference case we have used to develop estimates of reductions in carbon dioxide emissions. For the UTRP, the carbon sequestration estimates were developed directly.

The carbon dioxide emission rate for a CCCT was calculated as 0.4324 tons per MWh. This was derived from a heat rate of 7,520 Btu/kWh (source: "EPRI Technical Assessment Guide," June 1993, p. 8-101, right-hand column of Exhibit 23--technology number 16.3 @ 75% load) and a carbon dioxide emission rate of 115 lbs/MMBtu for natural gas (source: Daniel Fluor, "Environmental Data for Thermal Resources," October 1991, prepared for the Bonneville Power Administration, p. 16-2).

Project energy savings were thus converted to indirect emissions reductions using the conversion factor 0.4324 tons of carbon dioxide emissions avoided per MWh saved, or, equivalently, 3,787.8 tons of carbon dioxide emissions avoided per aMW saved. All estimates of emission reductions are expressed in short tons.

5) The instructions for the EIA-1605 reporting forms ask that future reductions in greenhouse gas emissions be estimated if the project has a finite lifetime. We report on four types of projects in these reporting forms: system efficiency improvements; a hydroelectric generation project; an urban tree replacement program; and conservation programs. All of them are assumed to be of indefinite duration.

6) The following acronyms have been used for other government agencies in Part IV for the Section 3 (Energy End Use or conservation) projects in Schedule II of this report:

BPA = Bonneville Power Administration

NWPPC = Northwest Power Planning Council